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WISDOM OF GOD IN CREATION.

TANTUS AMOR FLORUM.

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of the Royal Botanic Garden, and had detected a very notable quantity of manganese in their composition. He exhibited on a platina wire an opaque bluish green bead, the result of fusing the ashes with carbonate of soda in the outer flame, so as to produce manganate of soda (soda mineral chameleon); and a transparent violet bead obtained by heating the ashes with borax and a trace of nitre, so as to produce a glass coloured like the amethyst by oxide of manganese. Mr. Dick is now making a complete analysis of the ashes.

Mr. M'Nab read the following report on the state of vegetation in the Edinburgh Botanic Garden, from the 8th of January till the 11th of February. The communication embraced a register of the periods of flowering of plants in the open air, as compared with the flowering of the same species, and as nearly as possible the same individual plants, during the two previous years.

	Dates of Flowering.		
Name.	1852.	1851.	1850.
	Jan.	Jan.	Dec.
Rhododendron atrovirens	14	2	
Garrya elliptica	20	14	24
		Feb.	
Rhododendron Nobleanum	23	2	
		Jan.	March.
Geum pyrenaicum	23	20	22
Erica herbacea	24	16	Feb.
Corylus Avellana	25	16	16
Azara dentata	26	Jan.	
Alnus glutinosa	27	13	Feb.
Galanthus nivalis	28	17	11
Knappia agrostidea	31	28	22
Daphne Mezereon	31	28	22
Eranthis hyemalis	31	15	14
	Feb.	Feb.	
Cornus mascula	2	14	
		Jan.	March.
Symphytum caucasicum	2	23	14
			Feb.
Galanthus plicatus	3	28	14
Crocus susianus	3	26	16
			March.
Helleborus lividus	3	11	19
Sisyrinchium grandiflorum	3	27	12
			Feb.
Potentilla Fragariastrum	5	26	5
Helleborus odorus	10	20	14

Mr. M'Nab also presented, from Mr. Handasyde, the following list of plants observed in flower at Glen Nurseries, Musselburgh, on the 12th of February, 1852:—

Helleborus atropurpureus
„ olympicus albus
„ „ ruber
„ orientalis
„ Abchasia
„ viridis
„ niger
Saxifraga oppositifolia major
„ „ alba
Sisyrinchium grandiflorum
Leucojum vernum
Colchicum vernum
Scilla præcox

Crocus, cloth of gold
„ large yellow
Narcissus Jonquilla campernelle
Primula, double white
„ „ crimson
Erica herbacea
„ carnea
„ mediterranea hybernica nana
Russian Violet
Rhododendron dauricum atrovirens
Garrya elliptica, has been in flower all the winter

many lichens by an unorganized colloid matter, also hygrometric to a great degree. It is sometimes nearly absent; and, under whatever form it appears, it seems to act mechanically only, transmitting pabulum to the green layer, and keeping it surrounded by a sufficient quantity of moisture. The green cells termed gonidia frequently accumulate in masses, burst through the cuticular layer, and appear as a green powder on the surface of the plant. In this state the single gonidia are capable of continuing the powers of cell-development at a distance from the parent, forming round themselves the gray hygrometric tissue, and, like the parent plant, producing at length true reproductive organs. This is by no means a solitary instance of the formation of these from developing cells in the vegetable kingdom. We have in the ferns an instance of another order propagating through gonidia. In the ferns, cells, long called spores, are found within modified leaves, or parts of leaves. These cells, when placed in favourable circumstances of heat and moisture, develope, by nuclear division, a small cellular expansion (still part of the parent-plant, as no process of cell-conjugation has intervened), called the pro-embryo. On this pro-embryo two cellules, of different character, appear, a union takes place between the different cells, and the product is an ovoid body, the sporidium. Within this sporidium, by nuclear division, spores are produced, only one of which comes to perfection, the others proving abortive. The spore is developed *in situ*, feeding upon the pro-embryo as upon a cotyledon, and forming the new fern. To return to the lichens: if we examine sections made through the frond of Lecanora, through the apothecia at various stages of growth, we meet, at an early stage, with a hollow sphere of delicate, rounded cells (perithecium), surrounding a number of elongated, filiform cells (paraphyses), arranged vertically in a rounded mass. Advancing a little further in development, the cells of the perithecium above the centre of the mass of paraphyses has given way; and among the paraphyses a few flask-shaped, delicate cells (asci) are visible, closely resembling paraphyses distended and filled with mucus or cytoblastema. Very shortly the fluid contents become slightly granulated; and the granules eventually aggregate into eight cytoblasts. Round these cytoblasts delicate, rounded cells are formed, which take at length an ovoid form; and we may generally easily perceive within them two free nuclei. Round these nuclei two secondary cells are developed, which gradually increase in size, so as nearly to fill up the parent-cell. They become filled with densely-granular chlorophyll; and finally the two cells conjugate; that is to say, the walls of both cells give way, and the granular contents amalgamate, nearly filling up the parent-cell. The result of this conjugation is a large, compound, granular cell. Watching its further progress, we observe the granules becoming more and more distinct and defined, till at length the mother-cell bursts, and the contained cellules escape. At the same time the ascus gives way, and the cellules are dispersed as spores, to originate new individuals." The paper was concluded by some general remarks on the conjugation of cells, as being in all orders of plants the type of the generative act.

Dr. Balfour stated that Mr. Allan B. Dick (assistant to Dr. George Wilson) had analyzed the leaf of Livistona chinensis, Sabal umbraculifera, Chamærops humilis and arborescens, grown in the Palm House

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(*Concluded from page 2 of Wrapper*).

Mr. M'Nab read the following extract from a letter from Dr. G. M'Nab, Kingston, Jamaica, dated the 13th of January, 1852.—"With reference to your inquiries regarding the paper made from the Spanish Dagger Plant, exhibited at the Botanical Society by Mr. Sawers on the 13th of November last, I have to state that the Spanish Dagger is the Yucca aloefolia, a plant very common in this country for making fences; the fine paper-looking substance is got by breaking the lower part of the leaf along the midrib, then pulling each half gently from the cuticle which covers the upper surface. It is most easily got from the young leaves, as in them only it separates freely; it can also be got equally well from the young leaves of the Yucca gloriosa. It is an excellent article for making artificial flowers, as it takes colours freely."

Mr. M'Nab exhibited specimens of the paper which he had prepared from the upper surface of the *young* leaves of Yucca gloriosa growing in the Botanic Garden, and he showed the method in which it was prepared.

A communication was read from Mr. William Keddie, of Glasgow, in which he stated that he had found vast profusion of Batrachospermum vagum, in the pools and rivulets immediately under the upper part of Goatfell in Arran, about the place where the granite comes into contact with the schistose rocks. The plant is not commonly found in Scotland. Several specimens were presented to the herbarium.

The following new members were elected :—Joseph Johnston, Esq.; T. Roxburgh Polwhele, Esq.

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